

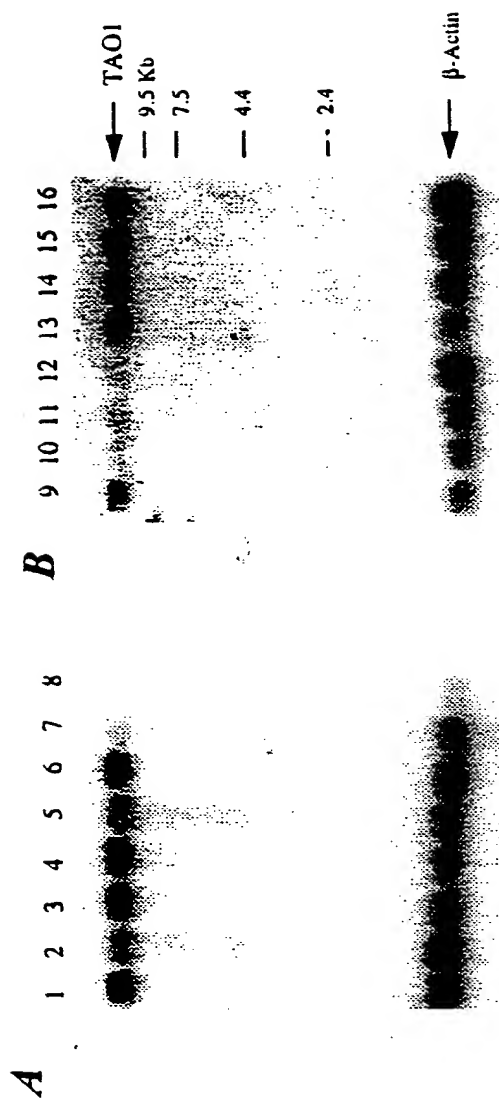
[illegible]

FIG. 1

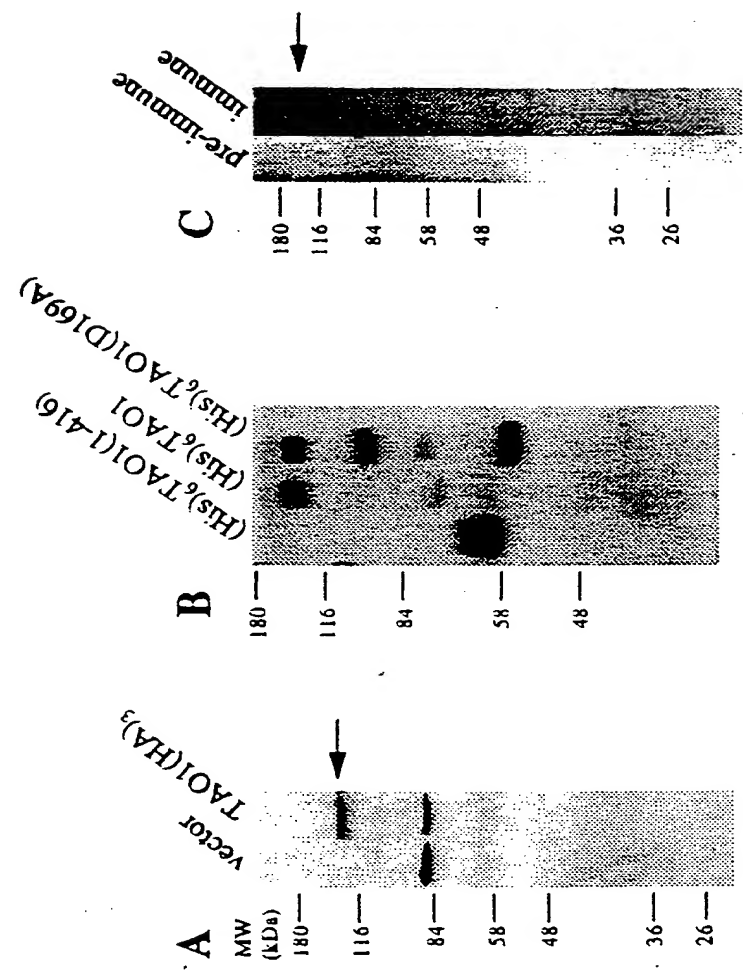
	I	II	III	
TA01	MPSTHRAGSLKDP	EAELFPKEDPEK	LTDLRETOHOSFO	AVYFAKAVRTHNEVAIKKMSYSKQSTKXW--QDIKEV 77
TA02	MPAGGRAGSLK	DPVARELFFKDDPEK	LFSDLRETOHOSFO	AVYFAKAVRTHNEVAIKKMSYSKQSTKXW--QDIKEV 77
CTAO	-MAPAVI	QKIVIKIDPSTAA	LFSDLRETOHOSFO	AVYFAKAVRTHNEVAIKKMSYSKQSTKXW--QDIKEV 76
STE20	REERERRKKQ	LVAKLNEICSDCDP	STKYAHILVKIQ	QASGGVYTAIEIGTHVSVAIKQWNLK--KQPKKELIIRHILVMK 670
	IV	V	VI	
TA01	KFLQRIKHPNS	IEYKGCYLRENTAM	LVMEYCLQASDL	LELVKKPLQVEVIAAITHICALQGLAYLHBIHTMIHRDIKAGN 156
TA02	RFLQRIKHPNS	IEYKGCYLRENTAM	LVMEYCLQASDL	LELVKKPLQVEVIAAITHICALQGLAYLHBIHTMIHRDIKAGN 156
CTAO	SFLNTVVPHI	IVDYKACFLKDTT	CHLVMEYCLQASDL	LELVKKPLQVEVIAAITHICALQGLAYLHBIHTMIHRDIKAGN 155
STE20	Q----	SKHPHIVNF	IDSVLKKDGLW	IMEYNEGGSUTD-VTHICILTEGQIGAVCRETLGOLFHLH8KCVLHRDIKSDM 744
	VII	VIII	IX	
TA01	ILLTEPGQVK	LADYOSAS----	MASPANSFVOT	PPYVWNAPEVILAMDEGOYDCKVDVWMBLQITCIELAERKPPPLFNKNA 230
TA02	ILLSEPGQVK	LADYOSAS----	INAPANSFVOT	PPYVWNAPEVILAMDEGOYDCKVDVWMBLQITCIELAERKPPPLFNKNA 230
CTAO	ILLSHAIYV	KLADYOSAS----	LVDPAQTF	ICOTPPFNAPEVILAMDEGHYTDRAIDMBLQITCIELAERKPPPLFNKNA 229
STE20	ILLSMEGDI	KLTDTYQFCAQ	INELNLKRTT	MVOTPPYVWNAPEVVSRLK----
	X	XI		
TA01	MSALYHIAQ	WESPTLQSN	WSDYFRN-----	FVDSCLQKIPQDRPTSE 273
TA02	MSALYHIAQ	WESPTLQSN	WSDYFRN-----	FVDSCLQKIPQDRPTSE 273
CTAO	MSALYHIAQ	WESPTLQSN	WSDYFRN-----	FVDSCLQKIPQDRPTSE 273
STE20	LRLVLIAT	MTGTGPKL	KPENLGS----	SLKK--FLDWCLCPEPEDRASAT 863

FIG. 2





FIGS. 4A and 4B



FIGS. 5A-5C

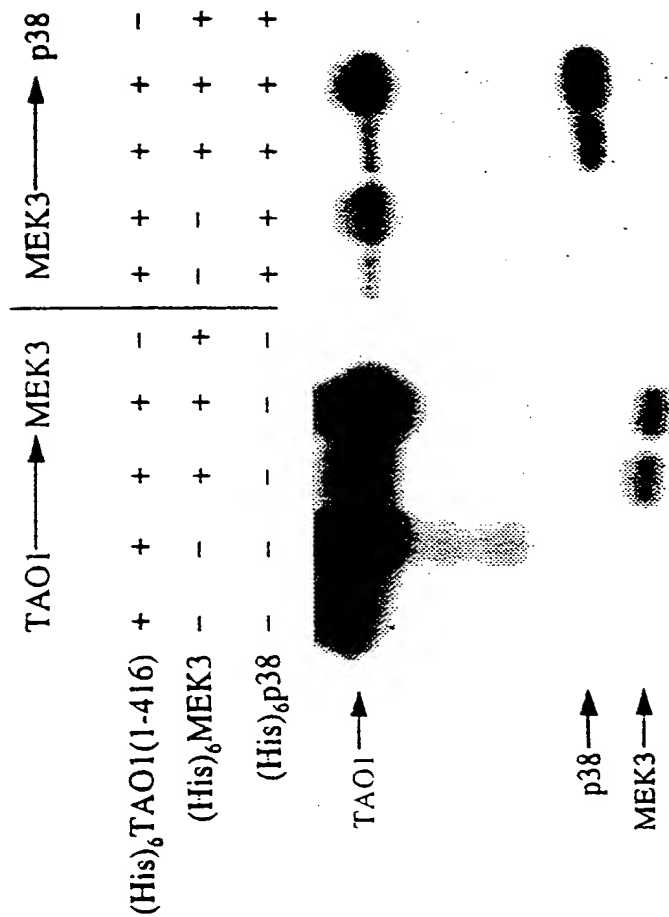


FIG. 6

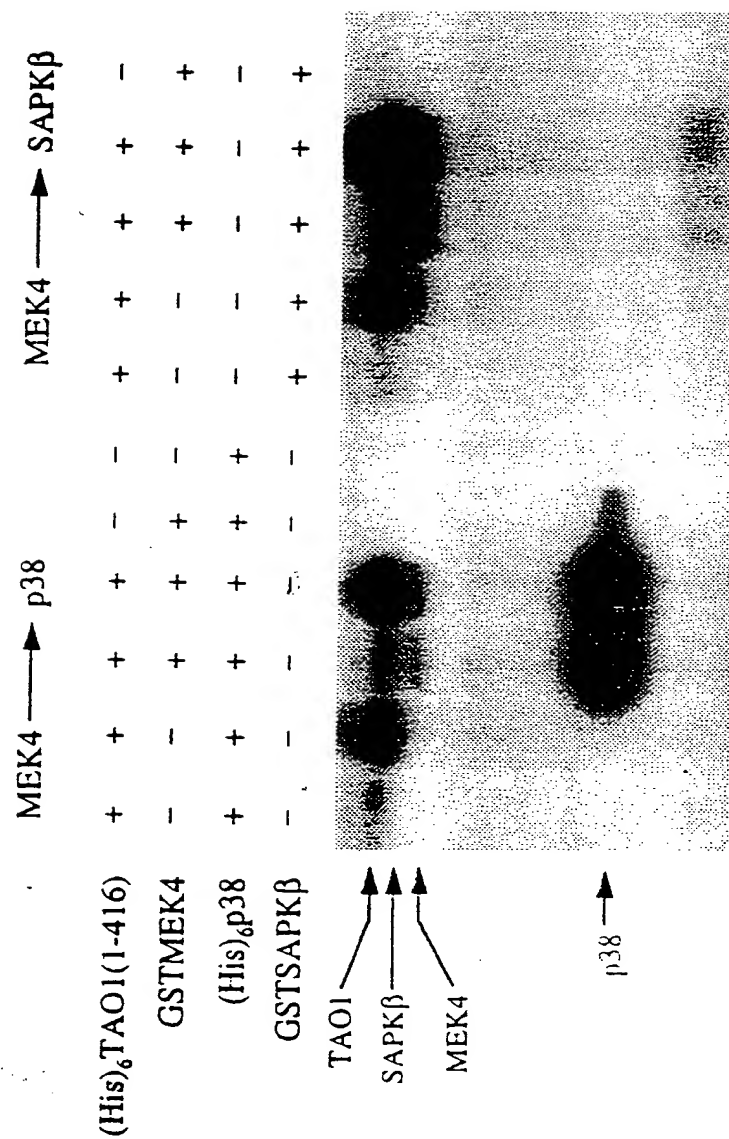


FIG. 7

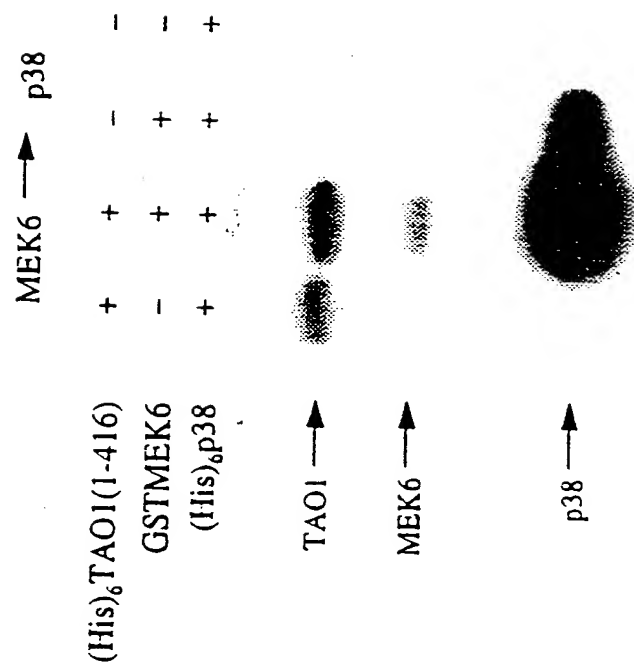


FIG. 8

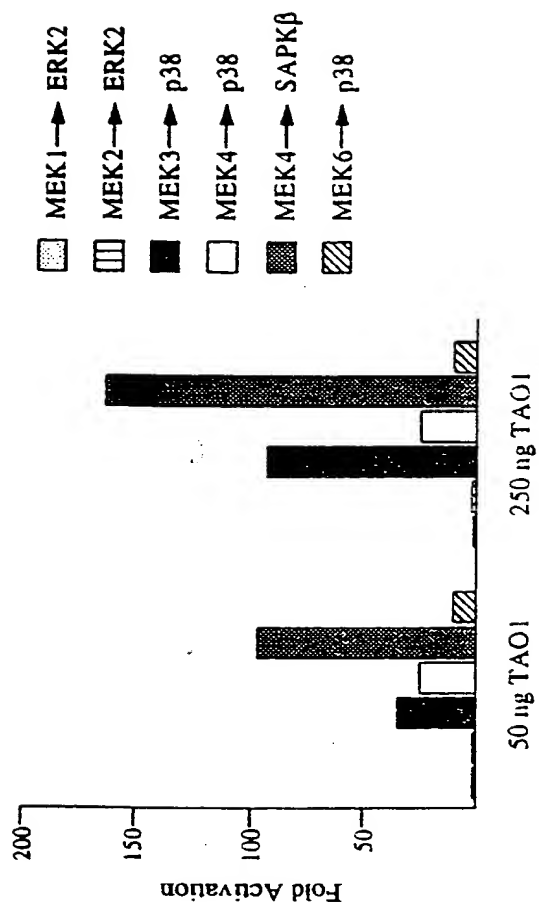


FIG. 9

	vector	+	-	-	-
pCMV5TAO1(HA) ₃	-	-	-	+	+
pCMV5mycMEK3	-	+	+	+	+



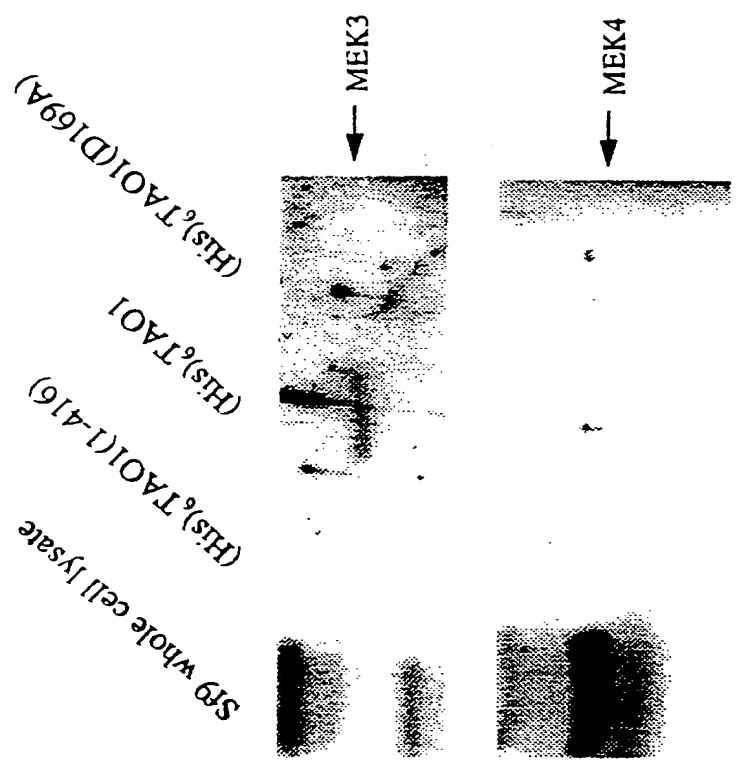


FIG. 11

```
Query:      2341 AGGAATCACCTACTGGAGACTACACCAAAGAGTGAGCACAAGCTGTTCTGAAAAGACTC 2400
             ||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct:       12 ACGANTCACCAGTTTGAAGTTACTCCAAAGAATGAGCACAACAATCTTAAAGACACTG 71

Query:     2401 AAGGAGGAACAGACTCGGAAGTTAGCCATCTTGGCTGAGCAGTATGATCATAGCATTAAT 2460
             ||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct:       72 AAAGATGAGCAGACAAGAAAAC TTGCCATT TNGGCAGAGCAGTATGAACAGAGTATAAAT 131

Query:     2461 GAAATGCTCTCCACACAAGCTCTGCGTTTGGATGAAGCACAGGAAGCAGAATGCCAGGTT 2520
             ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct:       132 GAAATGATGGCCTCTCANGCGTTACGGCTAGATGAGGCTCAAGAAGCAGAATGCCAGGCC 191

Query:     2521 TTGAAGATGCAGCTACAGCAGGAACTGGAGCTGTTGAATGCATATCAGAGCAAAATCAAG 2580
             ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct:       192 TTGAGGCTACAGCTCCAGCAGGAAATGGAGCTGCTCAACGCCTACCAGAGCAAAATCAAG 251

Query:     2581 ATGCAGGCTGAGGCCCAACATGATCGAGAGCTTCGAGAGCTGGAACAAAGGGTCTCCCTT 2640
             ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct:       252 ATGCAACAGAGGCACAACATGAACGTGAGCTCCAGAAGCTAGAGCAGAGAGTGTCTCTG 311

Query:     2641 CGGAGAGCACTCTTAGAACAGAAGATTGAAGAAGAGATGTTGGCTTTGCAGAATGAACGC 2700
             ||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct:       312 CGCAGAGCACACCTTGAGCAGAAGATTGAAGAGGAGCTGGCTGCCCTTCAGAAGGAACGC 371

Query:     2701 ACAGAACGAATACGTAGCCTGCTCGAGCGCCAGGCCAGAGAAATTGAAGCTTTTT 2754
             |   ||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Sbjct:       372 AGCGAGAGAATAAAGAACCTATTGGAAAGGCAAGAGCGCAGAGATTGGAAACTTT 425
```

FIG. 12

Query: 964 GAACAAACATGTGCTTT AAAGTTCCTCTGATGTAGGGCGATCTTGAGGGATTTTCTGGA 905
 Sbjct: 79 GAACAAAGTCATGCCTTAATAGTTCTGCTGATGTTGGCCTTTCCTGAGGTATTTTCTGCA 138

Query: 904 GGCAAGAATCTACAAAGTTTCGAAAATAATCAGACCATTTCATTAGACTGTAGTGTAGGGG 845
 Sbjct: 139 AGCAGTAATCAACAAATCTCCTAAAGGAGTCTGTCCATTTCATTAGACTGTAACGTTGGGG 198

Query: 844 ATTCAATTTTGGGCTATGTGATATAAGGCACTCATTGCATTTCATATTAAATAAGGAGGCT 785
 Sbjct: 199 AGTCATTCTGGGCAATGTGATATAAGGCACTCATTGCATTTCATGTTGAAAAGGGGCGGCT 258

Query: 784 TCCTCTCGGCTAATTCATAATCATGTTATTCCAAGAGACCATACATCAACTTTGCCATCAT 725
 Sbjct: 259 TCCGTTCCGCCAATTCATAACAAGTGATGCCAAGTGACCAAATATCAACTTTCCCATCAT 318

Query: 724 ATTGTCCTTCATCCATGGCTAAAATTACTTCTGGGGCCATCCAATATGGTGTTCACAA 665
 Sbjct: 319 ACTGTCCTTCATCCATAGCTAAGATCACCTCTGGAGCCATCCAGTAAGGTGTGCCACGA 378

Query: 664 AAGAATTGGCAGGG 651
 Sbjct: 379 AGGAGTTGGCCAGG 392

FIG. 13

000101 94298960

```
Query:   2792 ACCATGTTACTAAAACCTAATCTCATGCTTTCAGAGTGCAAAGCCTTCAATTTCCTCTGGCC 2733
          |||||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||
Sbjct:    90 ACCAAATTCCCAAATCCCATTCTGAGGCTCTCCATGTCAAAAGTTCAATTCTCTCGCTCT 149

Query:   2732 TGGCGCTCGAGCAGGCTACGTATTCTGTTCTGTGCGTTCAATTCTGCCAAGCCAACATCTCT 2673
          |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||
Sbjct:   150 TGCCTTTTCCAATAGGTTCTTTATTCTCTCGCTGCCTTCCTTCTGAAGGGCAGCCAGCTCC 209

Query:   2672 TCTTCAATCTTCTGTTCTAAGAGTGCTCTCCGAAGGGAGACCCTTTGTTCCAGCTCTCGA 2613
          |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||
Sbjct:   210 TCTTCAATCTTCTGCTCAAGGTGTGGTCTGCGCAGAGACACTCTCTGCTCTAGCTTCTGG 269

Query:   2612 AGCTCTCGATCATGTTGGG CCTCAGCCTGCATCTTGATTTTGCTCTGATATGCATTCAAC 2553
          |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||
Sbjct:   270 AGCTCAGTTCATGTTGTGCCTCTGTTNGNATCTTGATTTGNTCTGGTAGGCGTTGAGC 329

Query:   2552 AGCTCCAGTTCTGCTGTAGCTGCATCTTCAAAACCTGGCATTCTGCTTCCTGTGCTTCA 2493
          |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||  |||||
Sbjct:   330 AGCTCCATTTCCTGCTGGAGCTGTAGCCTCAAGGCCTGGCATTCTGCTTCTTGAGCCTCA 389

Query:   2492 TCCAAACGCAGAGCTTGTGTGGAGAGCATTTCATTAATGCTATGATCATACTGCTCAGCC 2433
          |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||  |||
Sbjct:   390 TCTAGCCGTAACGCTTGAGAGGCCATCATTTCATTTATACTCTGTTCATACTGCTCTGCC 449

Query:   2432 AAGATGGCTA 2423
          | | | | | 
Sbjct:   450 AAAATGGCAA 459
```

FIG. 14

Figure 1 shows 11 diagrams (a) through (k) illustrating the cross-sections of a 1000 mm diameter pipe at different stages of corrosion. The diagrams show the progression of corrosion from the outside in, with the inner diameter increasing and the wall thickness decreasing. The diagrams are arranged in a vertical column.

```
Query:   2437 GAGCAGTATGATCATAGCAATTAATGAAATGCTCTCCACACAAGCTCTGCGTTTGGA TGAA 2496  
          |||  
Sbjct:    193 GAGCAGTATGAACAGAGTATAAATGAAATGATGGCCTCTCAAGCGTTACGGCTAGATGAG 252  
  
Query:   2497 GCACA 2501  
          |||||  
Sbjct:    253 GCTCA 257
```

B

FIG. 15A and 15B

A

Query: 3228 GTGCATATGGTATATTTTATTCGTCTTTGTAAAGCGTTATGTTTTGTGTTTACTAATTGG 3287
 |||||
Sbjct: 31 GTGCATATGGTATATTINATTCATTTTGTAAAGCGTTCTGTTTTGTGTTTACTAATTGG 90
Query: 3288 GATGTCATAGTATTTGGCTGCCGGG 3312
 |||||
Sbjct: 91 GATGTCATAGTACTTGGCTGCCGGG 115

B

Query: 3200 CTCACTTGGGTACTACCGGGTGGAAGCTGTGCATATGGTATATTTT 3245
 |||||
Sbjct: 1 CTCACTTGGGTACTACAGTGTGGAAGCTGAGTGCATATGGTATATT 46

FIG. 17A and 17B

```
Query:      739 GATGTATGGTCTCTTGGAATAACATGTAATTGAATTAGCCGAGAGGAAGCCTCCTTTATTT 798
             ||| | |||| . || | | | | | | | | | | | | | | | | | |
Sbjct:      14 GATATTGGTCATTGGGTATCACGTGTATAGAGCTGGCCGAACGTCGTCACCATTGTTC 73

Query:     799 AATATGAATGCAATGAGTGCCTTATATCACATAGCCC AAAATGAATCCCCCTACACT 854
             | | | | | | | | | | | | | | | | | | | | | | | | | |
Sbjct:     74 AGTATGAATGCAATGTCTGCCCTCTACCATATTGCTCAA AAATGATCCTCCAAC TCT 129
```

FIG. 18

0966345 = 101000

```
Query:      187 GATCCGGAAGAACTCTTCACAGATCTCAGAGAAATCGGCCATGGGAGCTTTGGAGCAGTT 246
            |||||
Sbjct:      119 GACCCAGAGGAAGTCTTCACCAAGCTTGACCGCATTTGGCAAAGGCTCATTTGGGGAGGTG 178

Query:      247 TATTTTGCACGAGATGTGCGTACTAATGAAGTGGTGGCCATCAAGAAAAT 296
            |||||
Sbjct:      179 TACAAGGGGATCGACAACCACCCAAGGAAGTGGTGGCCATCAAGATCAT 228
```

B

FIG. 19A and 19B

